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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,483	03/25/2004	Hironori Osuga	033036M073	5757
441	7590	08/22/2006	EXAMINER	
SMITH, GAMBRELL & RUSSELL 1850 M STREET, N.W., SUITE 800 WASHINGTON, DC 20036			SELLERS, ROBERT E	
			ART UNIT	PAPER NUMBER
			1712	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/808,483

Applicant(s)

OSUGA, HIRONORI

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2006 and 22 June 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 4-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>March 25, 2004</u> . | 6) <input type="checkbox"/> Other: _____  |

Claims 3-6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction requirement in the reply filed on May 2, 2006.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiroku et al. Patent No. 6,506,822 and Japanese Patent No. 4-132727 (Japanese '727) in view of Shiobara et al. Patent No. 6,310,120 (Shiobara et al. '120) and Shintai et al. Patent No. 5,362,775.

1. Ichiroku et al. (col. 2, lines 21-56) discloses a composition comprising from 0.1 to 20 parts by weight per 100 parts of a hydrophobic organopolysiloxane oil of finely divided silica having a specific surface area of preferably from 100 to 400 m<sup>2</sup>/g (col. 7, lines 1-5), alumina to impart a higher thermal conductivity (col. 9, lines 59-64), from 5 to 60% by weight of the hydrophobic organopolysiloxane oil, an epoxy resin, a phenolic resin curing agent (col. 3, lines 35-50) and a curing accelerator (col. 4, lines 25-37).

Art Unit: 1712

2. Japanese '727 sets forth a blend of from 0.2-2.0 wt.% of ultrafine silica, alumina, from 5-20 wt.% of silicone oil, an epoxy resin and a novolak curing agent. The claimed curing accelerator is not recited. It would have been obvious to incorporate the curing accelerator of Ichiroku et al. into the blend of Japanese '727 in order to reduce the curing time.

Ichiroku et al. and Japanese '727 do not recite the claimed alumina in spherical form.

3. Shiobara et al. '120 (col. 1, line 58 to col. 2, line 3) reports a formulation prepared from spherical silica, preferably spherical silica to reduce the coefficient of expansion (col. 3, lines 43-49), up to 20 parts by weight per 100 parts by weight of an epoxy resin and curing agent (col. 5, lines 59-63) of a silicone rubber or silicone oil stress reducer (col. 4, lines 45-48), an epoxy resin, a curing agent and a curing accelerator (col. 3, lines 13-19).

4. Shintai et al. (col. 3, line 66 to col. 4, line 3) espouses a mixture of an epoxy resin, a phenolic curing agent, a silicone-modified phenol or epoxy resin (col. 8, lines 61-64), an organophosphorus curing accelerator and preferably a spherical alumina "to impart a low expansion characteristic and high heat conduction (col. 11, lines 22-26).

5. It would have been obvious to employ the alumina of Ichiroku et al. and Japanese '727 in spherical form as per Shiobara et al. '120 and Shintai et al. in order to reduce the coefficient of expansion and raise the heat conduction.

Art Unit: 1712

6. More favorable consideration would be given with respect to this rejection if the limitations of claim 2 were to be incorporated into claim 1 since neither Ichikroku et al. nor Japanese '727 recite the polyorganosiloxane present in an amount of as low as the claimed range of from 0.3-2.0% by weight.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. Patent No. 5,049,596 in view of (Shiobara et al. '120 and Shintai et al.) and Shiobara et al. Patent No. 6,001,901 (Shiobara et al. '901).

7. Fujimoto et al. (col. 1, line 63 to col. 2, line 7) sets forth a mixture of from 0.01 to 2 parts by weight of microfine silica, alumina powder (col. 3, lines 26-29), 0.51% by weight of a silane coupling agent within the ambit of the claimed silicone compound (col. 6, Table 1, "Silane coupling agent"), an epoxy resin, a novolak resin and triphenyl phosphine (the elected species of curing accelerator).

8. The claimed alumina in spherical form is not recited. Shiobara et al. '120 and Shintai et al. are described hereinabove. It would have been obvious to employ the alumina of Fujimoto et al. in spherical form as per Shiobara et al. '120 and Shintai et al. in order to reduce the coefficient of expansion and raise the heat conduction.

9. The claimed specific surface area of the microfine silica of from 120-280 m<sup>2</sup>/g is not recited. Ichiroku et al. is described hereinabove. Shiobara et al. '901 teaches an ultrafine silica having a specific surface area of from 100 to 300 m<sup>2</sup>/g for preventing burring (col. 4, lines 48-52) in a formulation composed of an epoxy resin, a phenolic resin curing agent and a silane coupling agent (col. 6, lines 13-14).

Art Unit: 1712

10. It would have been obvious to utilize the ultrafine silica of Fujiimoto et al. with a specific surface area of either preferably from 100 to 300 m<sup>2</sup>/g in order to prevent burring.

11. More favorable consideration would be given regarding this rejection if the limitations of claim 2 were to be inserted into claim 1 because the claimed level of silicone compound as a polyorganosiloxane is not recited.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. in view of Shiobara et al. '120 and Shintai et al. as applied to claim 1 hereinabove, and further in view of Shiobara et al. '120.

12. The references are described hereinabove. Fujimoto et al. does not recite the claimed polyorganosiloxane as the organosilicone compound. It would have been obvious to include from 0 to 20 parts by weight per 100 parts by weight of the epoxy resin and curing agent of the silicone rubber or oil of Shiobara et al. '120 in order to reduce the stress (col. 4, lines 45-48 and col. 5, lines 59-63).

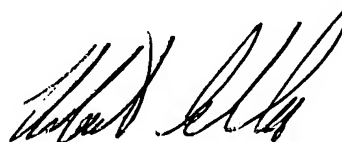
Art Unit: 1712

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Kanbara et al. Patent No. 7,053,018 is directed to the production of spherical alumina. The remainder of the cited prior art are drawn to mixtures of epoxy resin, phenol resin curing agent and silicone compounds with amounts of silica significantly greater than the claimed parameters of from 0.2-0.8% by weight.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).



Robert Sellers  
Primary Examiner  
Art Unit 1712